

***TERRAIN AWARENESS AND
WARNING SYSTEM (TAWS)
GROUND/FLIGHT TEST
CONSIDERATIONS
FOR PART 25***

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Presentation Overview

- Acronyms
- Ground Test Considerations
- Flight Test Considerations

Acronyms

- FLTA - Forward Looking Terrain Avoidance
- TAWS - Terrain Awareness and Warning System
- EMC- Electro-magnetic Compatibility
- RFI - Radiated Frequency Intensity
- GPWS - Ground Proximity Warning System
- PDA - Premature Descend Alert

TAWS GROUND TEST CONSIDERATIONS

A ground test should be conducted for each installation. Level of testing will be determined by the scope of the installation (First of a Model vs. Follow-on)

Items consider for ground test:

- Location of TAWS controls, displays & annunciations
- Self-test functions
- Evaluate failure modes
- Evaluate all discretes & TAWS interfaces
- EMI/EMC testing
- Electrical transient testing

TAWS FLIGHT TEST CONSIDERATIONS

The level of TAWS flight test required is based on the type of airplane, airplane system architecture, and certification credit given for previously approved installation, simulation, and ground test.

TAWS FLIGHT TEST CONSIDERATIONS

- Example 1: First time the manufacturer's equipment installed in any airplane for a first time STC/TC approval. In this case a complete ground & flight tests are required
 - TAWS functional evaluations:
 - Terrain display (par 20.e of this A/C)
 - FLTA functions (par 20.b of this A/C)
 - PDA Functions (par 20.c of this A/C)
 - Horizontal Position Source
 - Basic GPWS (par 20.d of this AC)

TAWS FLIGHT TEST CONSIDERATIONS

- Example 2: A follow-on of the previously approved TAWS which a required sensor input has not previously approved for the specific manufacturer's equipment. (i.e. sensor provides baro altitude was not previously approved)
 - TAWS functional evaluations:
 - FLTA functions (par 20.b of this A/C)
 - PDA Functions (par 20.c of this A/C)

TAWS FLIGHT TEST CONSIDERATIONS

- Example 3: A follow-on of the previously approved TAWS which the Terrain Display has not previously approved for the specific manufacturer's equipment.
 - TAWS functional evaluations:
 - FLTA functions (Par 20.b of this A/C)
 - Terrain Display (Par 20.e of this A/C)

TAWS FLIGHT TEST CONSIDERATIONS

- Example 4: A follow-on of the previously approved TAWS which the horizontal position source sensor input has not previously approved for the specific manufacturer's equipment.
 - TAWS functional evaluations:
 - FLTA functions (Par 20.b of this A/C)
 - Terrain Display (Par 20.e of this A/C)
 - Horizontal Position Source

TAWS FLIGHT TEST CONSIDERATIONS

- Example 5: A follow-on of the previously approved TAWS which the radio altitude has not previously approved for the specific manufacturer's equipment.
 - TAWS functional evaluations:
 - PDA (Par 20.b of this A/C)
 - Or
 - Basic GPWS

TAWS FLIGHT TEST CONSIDERATIONS

- Example 6: An initial installation of a manufacturer's TAWS in airplane that was previously approved with a basic GPWS equipment from the same manufacturer, same basic GPWS and the same sensors that are used for the TAWS installation. In this case, basic GPWS testing is not required.
 - TAWS functional evaluations:
 - Terrain display (par 20.e of this A/C)
 - FLTA functions (par 20.b of this A/C)
 - PDA Functions (par 20.c of this A/C)
 - Horizontal Position Source

Questions????